1. **ABUNDANCE:** populations are large enough to resist extinction due to random environmental, demographic and genetic variation.

2. **PRODUCTIVITY:** populations have enough reproductive capacity to ensure resistance to episodes of poor freshwater or ocean conditions and the ability to rebound rapidly during favorable periods, without the aid of artificial propagation.

3. **SPATIAL DISTRIBUTION:** populations are distributed widely and with sufficient connectivity such that catastrophic events do not deplete all populations and stronger populations can rescue depleted populations.

4. **DIVERSITY:** populations have enough genetic and life history diversity to enable adaptation to long-term changes in the environment. Populations achieve sufficient expression of historic life history strategies (migration timing, spawning distribution), are not negatively impacted by outbreeding depression resulting from straying of domesticated hatchery fish, and are not negatively impacted by inbreeding depression due to small population size and inadequate connectivity between populations.

The NMFS recovery planning for Central Valley salmonids will proceed in two phases. The first phase will be conducted by a technical recovery team (TRT) that will produce numeric recovery criteria for populations and the ESU following the VSP framework, factors for decline, early actions for recovery, and provide plans for monitoring and evaluation. The TRT will review existing salmonid population recovery goals and management programs being implemented by federal and State agencies and will coordinate with agency scientists, CALFED staff and Central Valley science/restoration teams such as the Interagency Ecological Program work teams during this first phase. TRT products will be peer-reviewed and made available for public comment.

The second phase will be identification of recovery measures and estimates of cost and time required to achieve recovery. The second phase will involve participation by agency and CALFED staff as well as involvement by a broad range of stakeholders, including local and private entities, with the TRT providing technical guidance on biological issues.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Coordinate protection, enhancement, and restoration of occupied and historic Central Valley steelhead ESU habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, the Anadromous Fish Restoration Program, the U.S. Fish and Wildlife Service recovery plans, the SB 1086 Program, and the Corps' Sacramento and San Joaquin Basin Comprehensive Study) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.

- Implement applicable management measures identified in the restoration plan for the Anadromous Fish Restoration Program and the recovery plan for the native fishes of the Sacramento/San Joaquin Delta.

- Implement management measures as recommended by DFG that are applicable to CALFED actions and achieving CALFED objectives.

- Minimize flow fluctuations to reduce or avoid stranding of juveniles.

***RATIONALE**: NMFS has identified steelhead populations in the Central Valley as composing a single evolutionarily significant unit (ESU) based on a variety of physical and biological data. These data include the physical environment (geology, soil type, air temperature, precipitation, riverflow patterns, water temperature, and vegetation); biogeography (marine, estuarine, and freshwater fish distributions); and life history traits (age at smolting, age at spawning, river entry timing, spawning timing, and genetic uniqueness).*

The Central Valley steelhead ESU encompasses the Sacramento River and its tributaries and the San

Joaquin River and its tributaries downstream of the confluence with the Merced River (including the Merced River). Recent data from genetic studies show that samples of steelhead from Deer and Mill creeks, the Stanislaus River, Coleman National Fish Hatchery on Battle Creek, and Feather River Hatchery are well differentiated from all other samples of steelhead from California Busby et al. 1996; NMFS 1997).

Within the broad context of ecosystem restoration, steelhead restoration will include a wide variety of efforts, many of which are being implemented for other ecological purposes, or that are nonspecific to steelhead trout. For example, restoration of riparian woodlands along the Sacramento River between Keswick Dam and Verona will focus on natural stream meander, flow, and natural revegetation/successional processes. These will be extremely important in providing shaded riverine aquatic habitat, woody debris, and other necessary habitats required by lower trophic organisms and juvenile and adult steelhead populations.

Operation of the water storage and conveyance systems throughout the Central Valley for their potential ecological benefits can be one of the more important elements in restoring a wide spectrum of ecological resources, including steelhead trout. Inadequate connectivity between upstream holding, spawning, and rearing habitat in certain tributary streams has impaired or reduced the reproductive potential of most steelhead stocks. Providing stream flows, improving fish ladders, and removing dams will contribute greatly to efforts to rebuild steelhead populations.

MASON'S LILAEOPSIS

MSCS SPECIES GOAL PRESCRIPTION: Expand suitable and occupied habitat by 100 linear miles and protect at least 90% of the currently occupied habitat including 90% of high quality habitat occurrences in the North, South, and East Delta and Napa River Ecological Management Units.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Maintain processes that support the dynamic habitat distributed throughout the species range and associated with existing source populations (species occurs on eroding margins of levees).
- To the extent practicable, design restoration of tidal habitats to create unvegetated, exposed substrate habitat at tidal margins of tidal fresh emergent wetland and riparian habitat.
- To the extent consistent with CALFED objectives, incorporate sufficient edge habitat to support the species in levee set back and channel island habitat restoration designs.
- To the extent practicable, maximize sinuosity of restored and created slough channels to increase water-land edge habitat.
- To the extent consistent with CALFED objectives, maintain and restore habitat and populations throughout the species' geographic ranges and expand habitat and populations to their historical and ecological ranges based on hydrologic, salinity and other habitat requirements of the species.
- Consistent with CALFED objectives, incorporate suitable habitat for these species in band protection designs used in CALFED actions.
- Monitor status and distribution of the species at five-year intervals and document expansion of the species into restored habitat for the duration of the Program.

RATIONALE: *Mason's lilaeopsis is dependent on saturated clay soils that are regularly inundated by waves and tidal action. Proposed habitat restoration action in the Sacramento-San Joaquin Delta and Suisun Marsh/North San Francisco Bay Ecological Management Zones will contribute to the recovery of this species.*

SUISUN MARSH ASTER

MSCS SPECIES GOAL PRESCRIPTION: Expand suitable and occupied habitat by 100 linear miles and protect at least 90% of the currently occupied habitat including 90% of high quality habitat occurrences in the North, South, and East Delta and Napa River Ecological Management Units.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the

Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Maintain processes that support the dynamic habitat distributed throughout the species range and associated with existing source populations (species occurs on eroding margins of levees).
- To the extent practicable, design restoration of tidal habitats to create unvegetated, exposed substrate habitat at tidal margins of tidal fresh emergent wetland and riparian habitat.
- To the extent consistent with CALFED objectives, incorporate sufficient edge habitat to support the species in levee set back and channel island habitat restoration designs.
- To the extent practicable, maximize sinuosity of restored and created slough channels to increase water-land edge habitat.
- To the extent consistent with CALFED objectives, maintain and restore habitat and populations throughout the species' geographic ranges and expand habitat and populations to their historical and ecological ranges based on hydrologic, salinity and other habitat requirements of the species.
- Consistent with CALFED objectives, incorporate suitable habitat for these species in band protection designs used in CALFED actions.
- Monitor status and distribution of the species at five-year intervals and document expansion of the species into restored habitat for the duration of the Program.

RATIONALE: *Suisun Marsh aster has habitat requirements similar to those described for Mason's lilaeopsis. Proposed habitat restoration action in the Sacramento-San Joaquin Delta and Suisun Marsh/North San Francisco Bay Ecological Management Zones will contribute to the recovery of this species.*

SUISUN THISTLE

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of Suisun thistle, establish 10 new populations, and increase overall population size ten-fold.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Identify opportunities for establishing new populations or expanding existing populations and habitat.
- Control and reduce populations of non-native marsh species with potential effects on Suisun thistle and potential Suisun thistle habitat.
- Monitor the population size and vigor of all extant occurrences at a two-year interval for the duration of the Program.
- Modify conservation measures according to the adaptive management process as more understanding is developed of recovery needs.

RATIONALE: *Suisun thistle is known from only two location in Suisun Marsh. It occurs on the edges of salt and brackish marsh habitat that are periodically inundated during high tides. Proposed habitat restoration action in the Suisun Marsh/North San Francisco Bay Ecological Management Zone will contribute to the recovery of this species.*

SOFT BIRD'S-BEAK

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of soft bird's-beak and reestablish and maintain viable populations throughout its historic range.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Expand potential habitat by improving tidal circulation to diked wetlands that sustain some existing exchange.
- Identify opportunities for establishing new populations or expanding existing populations and habitat.
- Establish soft bird's-beak populations to existing and restored suitable habitat.

- Control and reduce populations of non-native marsh species with potential effects on soft bird's beak and potential soft bird's-beak habitat.
- Monitor the populations size and vigor of all extant occurrences at two-year interval for the duration of the Program and design and implement remediation measures if the recovery goal is not met.
- Modify conservation measures according to the adaptive management process as more understanding is developed of recovery needs.

RATIONALE: *Soft bird's-beak inhabits the upper reaches of salt grass-pickleweed marshes at or near the limit of tidal action. Proposed habitat restoration action in the Suisun Marsh/North San Francisco Bay Ecological Management Zone will contribute to the recovery of this species.*

ANTIOCH DUNES EVENING-PRIMROSE AND CONTRA COSTA WALLFLOWER

MSCS SPECIES GOAL PRESCRIPTION: Continue protection of and expand the size of these species' Antioch Dunes populations; enhance and restore suitable habitat at and in the vicinity of the Antioch Dunes; and achieve recovery goals identified in the USFWS recovery plan.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Coordinate protection and restoration of inland dune scrub habitats with other programs (e.g., U.S. Fish and Wildlife Service recovery plans and management of the Antioch Dunes Preserve) that could affect management of occupied and historic habitat areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Conduct surveys to locate potential habitat restoration sites on Tinnin soils and identify opportunities for and implement permanent protection, restoration, and management of these habitat areas to enhance habitat conditions for these species.
- Enhance and maintain existing populations.
- Annually monitor establishment success and modify establishment and management techniques as needed using adaptive management.

RATIONALE: *Protection and restoration of these two species at the Antioch Dunes is a major objective of efforts to improve and expand suitable dune habitat. Although the species distribution is limited, the species appear stable.*

LANGE'S METALMARK BUTTERFLY

MSCS SPECIES GOAL PRESCRIPTION: Continue protection of and expand the size of the Antioch Dunes population of the Lange's metalmark butterfly; enhance and restore suitable habitat at and in the vicinity of the Antioch Dunes; and achieve recovery goals identified in the USFWS recovery plan.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Coordinate protection, enhancement, and restoration of inland dune scrub habitat with other federal and state programs (e.g., U.S. Fish and Wildlife Service species recovery plans and management of the Antioch Dunes Preserve) that could affect management of current and historic habitat areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Conduct surveys to locate potential habitat restoration sites on Tinnin soils and identify opportunities for and implement permanent protection, restoration, and management of these habitat areas to enhance habitat conditions for the Lange's metalmark.
- Monitor enhanced and restored habitat areas to determine the success of enhancement and restoration methods, and to determine the response of Lange's metalmark populations and management.

RATIONALE: *Protection and restoration of Lange's metalmark habitat at the Antioch Dunes is a major objective of the species recovery plan (U.S. Fish and Wildlife Service 1984c).*

VALLEY ELDERBERRY LONGHORN BEETLE

MSCS SPECIES GOAL PRESCRIPTION: Maintain and restore connectivity among riparian habitats occupied by the valley elderberry longhorn beetle and within its historic range along the Sacramento and San Joaquin rivers and their major tributaries.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Coordinate protection and restoration of riparian habitats with other federal and state programs (e.g., U.S. Fish and Wildlife Service recovery plans, the SB 1086 program, and the Corps' Sacramento and San Joaquin Basin Comprehensive Study) that could affect management of occupied and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Within the species current range, design ERP riparian habitat enhancements and restorations to include suitable riparian edge habitat, including elderberry savanna.
- Initially direct ERP riparian habitat actions towards enhancement and restoration of habitat areas located near occupied habitat to encourage the natural expansion of the species range.
- Include sufficient buffer habitat around suitable restored and enhanced habitat areas within the species' range to reduce potential adverse effects associated with pesticide drift.
- To the extent consistent with CALFED objectives, implement levee maintenance guidelines to protect suitable habitat.
- To the extent consistent with CALFED objectives, design levees to encourage the establishment and long-term maintenance of suitable habitat.

RATIONALE: *The primary reason attributable to the decline in numbers and distribution of the valley elderberry longhorn beetle populations is the extensive loss or degradation of its historical riparian habitats in the Central Valley to urban and agricultural uses, and flood control and water supply projects to support those uses (U.S. Fish and Wildlife Service 1984b). Protection, restoration, and enhancement of large expanses of suitable riparian habitat within the species historical and current range, therefore, will protect existing populations from future decline and provide habitat area necessary for existing populations to expand.*

SUISUN ORNATE SHREW

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of the Suisun ornate shrew and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the Suisun ornate shrew should be: 1) western Suisun Marsh, 2) Napa Marshes, and eastern Suisun Marshes, 3) Sonoma Marshes and Highway 37 marshes west of Sonoma Creek.
- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Initial species recovery efforts should be directed to locations where there are immediate

opportunities for protection, enhancement, or restoration of suitable habitat.

- To the extent practicable, direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- Restore wetland and perennial grassland habitats adjacent to occupied habitats to create a buffer of natural habitat to protect populations from adverse affects that could be associated with future changes in land use on nearby lands and to provide habitat suitable for the natural expansion of populations.
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the Suisun ornate shrew associated with recreational uses on lands acquired or managed under conservation easements.
- Direct salt marsh habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes within the range of the Suisun ornate shrew.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transitional habitat.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- To the extent practicable, control non-native predator populations in occupied habitat and saltmarshes enhanced and restored under the ERP.
- Provide interim management of occupied salt marshes to maintain source populations until restored habitats have developed sufficiently to provide suitable habitat.
- Acquire conservation easements to adjust grazing regimes to enhance wetland to upland transition habitat conditions in occupied habitat areas.
- Conduct research to determine use of restored salt marsh habitats by Suisun ornate shrews and the rate at which restored habitats are colonized.

RATIONALE: *The Suisun ornate shrew is a listed as a species of special concern by the California Department of Fish and Game, but its limited habitat and distribution indicate it may qualify as a threatened species. Long-term survival of this subspecies is dependent upon tidal wetland, as opposed to diked wetlands, and has to have adequate physical structures and plant communities for survival. Its tidal marsh habitat has to have adjacent upland habitat for survival of the species during periods when the marsh is inundated. The upland habitat has to have relatively low densities of exotic predators. Restoring habitat would not only benefit the Suisun ornate shrew but other species, such as the salt marsh harvest mouse, that also use tidal marsh and upland marsh habitats.*

SUISUN SONG SPARROW

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of the Suisun song sparrow and reestablish and maintain viable species' populations throughout its historic range in portions of the Bay and Delta Regions within the ERP focus areas.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing ERP actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the Suisun song sparrow should be: 1) western Suisun Marsh, 2) eastern Suisun Marsh, and 3) the Contra Costa County shoreline.
- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands

Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.

- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transitional habitat.
- To the extent practicable, direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Control non-native plants in existing salt marshes where non-native plants have degraded habitat quality and in salt marshes restored under the ERP.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the Suisun song sparrow associated with recreational uses on lands acquired or managed under conservation easements.
- Direct salt marsh habitat enhancements and restorations towards increasing habitat connectivity among existing occupied and restored tidal marshes.
- To the extent practicable, direct ERP restorations to improve tidal circulation to diked wetlands that currently sustain partial tidal exchange.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Conduct research to determine use of restored salt marsh habitats by Suisun song sparrows and the rate at which restored habitats are colonized.
- Acquire conservation easements to adjust grazing regimes to enhance wetland to upland transition habitat conditions.

RATIONALE: *The Suisun song sparrow occurs only in and near Suisun Marsh, in about 13 isolated populations. Populations of this unusual subspecies are declining for a variety of reasons but mainly the degradation of their habitat. Reductions in fresh water outflow from the Sacramento-San Joaquin Rivers and diking and channelization of marsh lands have contributed to their decline. Restoration of their populations is likely to be a good indicator of the success of restoration of brackish tidal marshes in the Suisun Marsh area.*

SAN PABLO SONG SPARROW

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of the San Pablo song sparrow and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing ERP actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the San Pablo song sparrow should be: 1) Gallinas/Ignacio marshes and Napa Marshes, 2)

Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 3) Point Pinole Marshes, 4) Highway 37 marshes east of Sonoma Creek,

- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- Design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transitional habitat.
- To the extent practicable, direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the San Pablo song sparrow associated with recreational uses on lands acquired or managed under conservation easements.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Conduct research to determine use of restored salt marsh habitats by San Pablo song sparrows and the rate at which restored habitats are colonized.

RATIONALE: *The San Pablo song sparrow occupies habitat only in the North San Francisco Bay Region and is dependent on saline emergent wetland habitat. Recover of this species may depend on the success of restoring additional saline emergent wetlands and associated transitional habitats.*

Species with the designation "Contribute to Recovery".

CALIFORNIA CLAPPER RAIL

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of the California clapper rail and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the California clapper rail should be: 1) Gallinas/Ignacio marshes and Napa Marshes, 2) Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 3) Point Pinole Marshes, 4) Highway 37 marshes west of Sonoma Creek, and 5) the Contra Costa County shoreline.

- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from potential adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transition habitat.
- Direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the California clapper rail associated with recreational uses on lands acquired or managed under conservation easements.
- Direct ERP restoration actions towards improving tidal circulation to dikes wetlands that currently sustain partial tidal exchange.
- Direct some habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Monitor to determine use of restored salt marsh habitat by California clapper rails and the rate at which restored habitats are colonized.

RATIONALE: *The primary reason attributable to the decline in California clapper rail populations is the extensive loss of its historical salt marsh habitat to urban, industrial, and agricultural uses (U.S. Fish and Wildlife Service 1984a). Restoration of large expanses of suitable salt marsh habitat within the species historical and current range, therefore, will provide habitat area necessary for populations to expand.*

CALIFORNIA BLACK RAIL

MSCS SPECIES GOAL PRESCRIPTION: Maintain the current distribution and existing populations of the California black rail and reestablish and maintain viable species' populations throughout its historic range in portions of the Delta and Bay Regions within the ERP focus area.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the California black rail should be: 1) western Suisun Marsh, 2) Gallinas/Ignacio marshes, Napa Marshes, and eastern Suisun Marshes, 3) Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 4) Point Pinole Marshes, 4) Highway 37 marshes west of Sonoma Creek, and 6) the Contra Costa County shoreline.

- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from potential adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transition habitat.
- Direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the California black rail associated with recreational uses on lands acquired or managed under conservation easements.
- Direct ERP restoration actions towards improving tidal circulation to dikes wetlands that currently sustain partial tidal exchange.
- Direct some habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Monitor to determine use of restored salt marsh habitat by California clapper rails and the rate at which restored habitats are colonized.
- Acquire conservation easements in occupied habitat areas to adjust grazing regimes to enhance wetland to upland transition habitat conditions.

RATIONALE: *The primary reason attributable to the decline in California black rail populations is the extensive loss of its historical tidal marsh habitat to urban, industrial, and agricultural uses. Restoration of large expanses of suitable tidal marsh habitat within the species historical and current range, therefore, will provide habitat area necessary for populations to expand.*

SWAINSON'S HAWK

MSCS SPECIES GOAL PRESCRIPTION: Protect, enhance, and increase habitat sufficient to support a viable breeding population. The interim prescription is to increase the current estimated population of 1,000 breeding pairs in the Central Valley to 2,000 breeding pairs. This prescription will be modified based on results of a population viability analysis being conducted by the California Department of Fish and Game.

MSCS CONSERVATION MEASURES: The following conservation measures are included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- Proposed ERP actions designed to restore valley/foothill riparian habitat should initially be implemented in the Delta.
- To the extent practicable, design restored seasonal wetlands in occupied habitat areas to